patientsData.R

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```r
library(tidyverse)
```

```
## Warning: package 'tidyverse' was built under R version 4.0.3

## -- Attaching packages --------------------------------------- tidyverse 1.3.0 --

## v ggplot2 3.3.3     v purrr   0.3.4
## v tibble  3.0.6     v dplyr   1.0.4
## v tidyr   1.1.2     v stringr 1.4.0
## v readr   1.4.0     v forcats 0.5.1

## Warning: package 'ggplot2' was built under R version 4.0.3

## Warning: package 'tibble' was built under R version 4.0.3

## Warning: package 'tidyr' was built under R version 4.0.3

## Warning: package 'readr' was built under R version 4.0.3

## Warning: package 'purrr' was built under R version 4.0.3

## Warning: package 'dplyr' was built under R version 4.0.3

## Warning: package 'stringr' was built under R version 4.0.3

## Warning: package 'forcats' was built under R version 4.0.3

## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```r
library(MASS)
```

```
##
## Attaching package: 'MASS'

## The following object is masked from 'package:dplyr':
##
##     select
```

```
library(klaR)
```

```
Warning: package 'klaR' was built under R version 4.0.3
```

```
set.seed(101)
patients_data <- read.csv("C:/Users/91828/Downloads/patients_data.csv", header=TRUE)

training_sample = sample(1:nrow(patients_data), nrow(patients_data)/2)
train = patients_data[training_sample,]
test = patients_data[-training_sample,]
partimat(as.factor(Current.Status) ~ Gender, data=train, method="lda")
```

Partition Plot

app. error rate: 0.291

GenderM (y-axis: 0.0 to 1.0)

GenderNon–Binary (x-axis: 0.0 to 1.0)
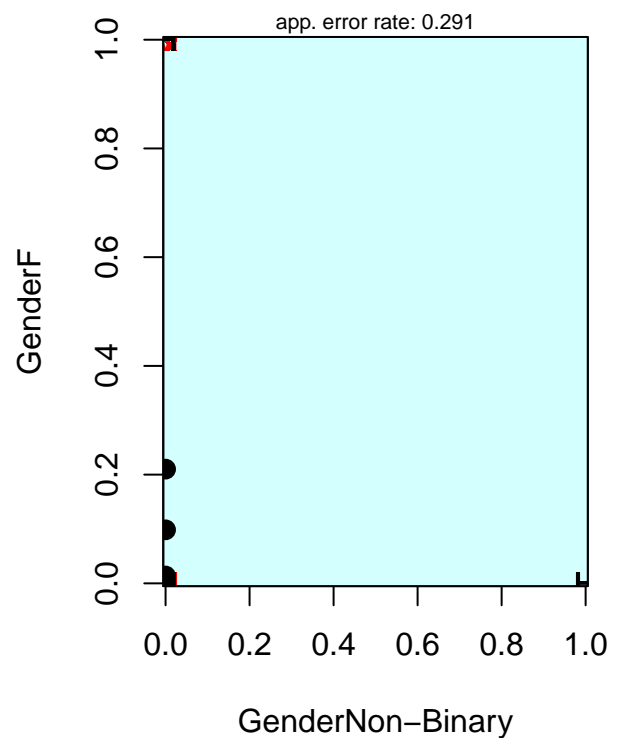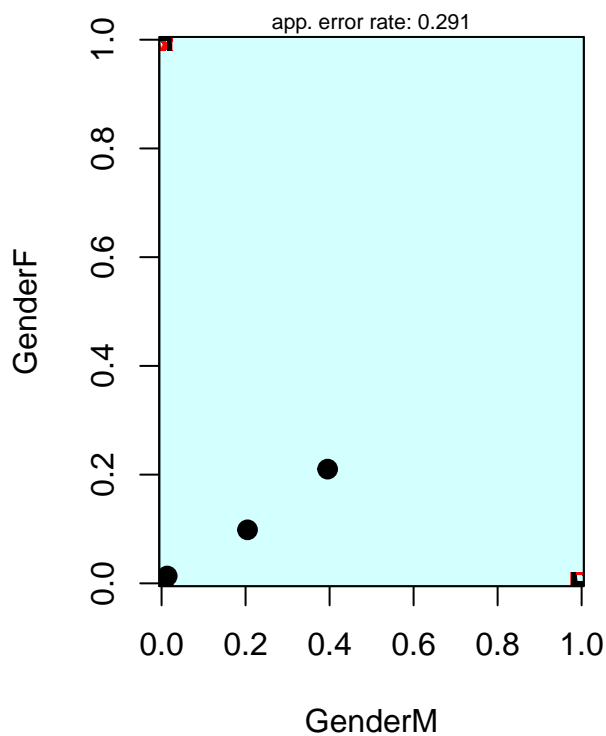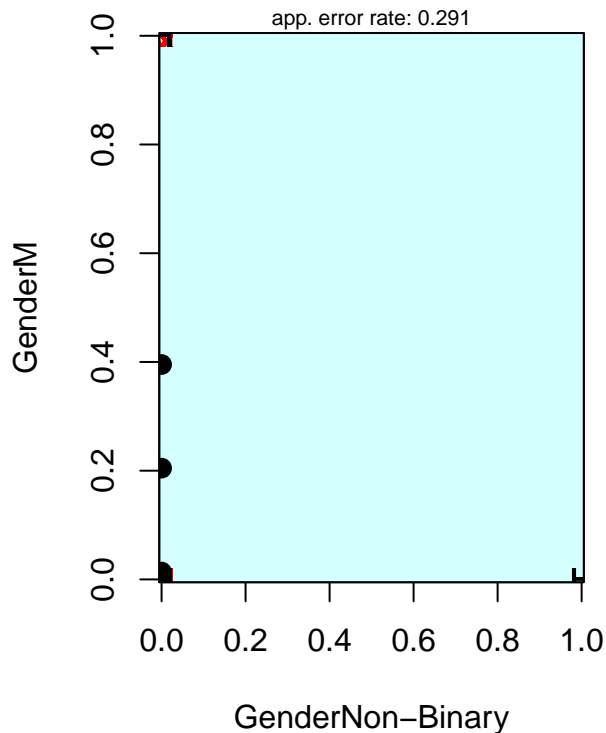
```r
lda.patients_data <- lda(Current.Status ~ Nationality + Gender+ Type.of.transmission +Detected.State, t
lda.patients_data #show results
```

```
## Call:
## lda(Current.Status ~ Nationality + Gender + Type.of.transmission +
##     Detected.State, data = train)
##
## Prior probabilities of groups:
##                   Deceased   Hospitalized       Migrated Migrated_other
##   3.235775e-05   4.929703e-02   7.087641e-01   2.426831e-05   1.617887e-05
## Migrated_Other      Recovered
##   5.986183e-04   2.412675e-01
##
## Group means:
##                NationalityCanada NationalityIndia NationalityIndonesia
##                     0.000000e+00      0.000000000          0.000000000
## Deceased            0.000000e+00      0.002789629          0.000000000
## Hospitalized        1.141344e-05      0.007258948          0.000102721
## Migrated            0.000000e+00      0.333333333          0.000000000
## Migrated_other      0.000000e+00      0.000000000          0.000000000
## Migrated_Other      0.000000e+00      0.000000000          0.000000000
## Recovered           0.000000e+00      0.002682313          0.000000000
##                NationalityItaly NationalityMyanmar NationalityPhillipines
##                    0.000000e+00       0.000000e+00           0.000000e+00
## Deceased           0.000000e+00       0.000000e+00           0.000000e+00
```

```
## Hospitalized        1.141344e-05        1.141344e-05              1.141344e-05
## Migrated            0.000000e+00        0.000000e+00              0.000000e+00
## Migrated_other      0.000000e+00        0.000000e+00              0.000000e+00
## Migrated_Other      0.000000e+00        0.000000e+00              0.000000e+00
## Recovered           2.682313e-04        0.000000e+00              0.000000e+00
##              NationalityThailand NationalityTibet NationalityUnited Kingdom
##                      0.000000e+00     0.0000000000              0.000000e+00
## Deceased             0.000000e+00     0.0001640958              0.000000e+00
## Hospitalized         1.141344e-05     0.0000000000              1.141344e-05
## Migrated             0.000000e+00     0.0000000000              0.000000e+00
## Migrated_other       0.000000e+00     0.0000000000              0.000000e+00
## Migrated_Other       0.000000e+00     0.0000000000              0.000000e+00
## Recovered            0.000000e+00     0.0000000000              3.352892e-05
##              NationalityUnited States of America      GenderF      GenderM
##                                    0.000000e+00 0.000000000 0.000000000
## Deceased                           0.000000e+00 0.098457499 0.204627502
## Hospitalized                       1.141344e-05 0.210087199 0.395315924
## Migrated                           0.000000e+00 0.000000000 0.000000000
## Migrated_other                     0.000000e+00 0.000000000 0.000000000
## Migrated_Other                     0.000000e+00 0.013513514 0.013513514
## Recovered                          0.000000e+00 0.004559933 0.005867561
##              GenderNon-Binary Type.of.transmissionImported
##                  0.000000e+00                  0.000000000
## Deceased         0.000000e+00                  0.001148671
## Hospitalized     7.989408e-05                  0.002727812
## Migrated         0.000000e+00                  0.333333333
## Migrated_other   0.000000e+00                  0.000000000
## Migrated_Other   0.000000e+00                  0.000000000
## Recovered        0.000000e+00                  0.002145851
##              Type.of.transmissionLocal Type.of.transmissionTBD
##                          0.0000000000            0.0000000000
## Deceased                 0.0013127667            0.0008204792
## Hospitalized             0.0091649927            0.0034810993
## Migrated                 0.0000000000            0.0000000000
## Migrated_other           0.0000000000            0.0000000000
## Migrated_Other           0.0000000000            0.0000000000
## Recovered                0.0009388097            0.0002011735
##              Type.of.transmissionUnknown
##                             0.000000e+00
## Deceased                    0.000000e+00
## Hospitalized                1.141344e-05
## Migrated                    0.000000e+00
## Migrated_other              0.000000e+00
## Migrated_Other              0.000000e+00
## Recovered                   0.000000e+00
##              Detected.StateAndaman and Nicobar Islands
##                                          0.0000000000
## Deceased                                 0.0006563833
## Hospitalized                             0.0005478451
## Migrated                                 0.0000000000
## Migrated_other                           0.0000000000
## Migrated_Other                           0.0000000000
## Recovered                                0.0010393965
##              Detected.StateAndhra Pradesh Detected.StateArunachal Pradesh
```

```
##                                     0.00000000               0.0000000000
## Deceased                            0.03626518               0.0003281917
## Hospitalized                        0.01686907               0.0020544193
## Migrated                            0.00000000               0.0000000000
## Migrated_other                      0.00000000               0.0000000000
## Migrated_Other                      0.00000000               0.0000000000
## Recovered                           0.01646270               0.0033528919
##              Detected.StateAssam Detected.StateBihar Detected.StateChandigarh
##                      0.000000000          0.00000000              0.000000000
## Deceased             0.012635379          0.02330161              0.001476862
## Hospitalized         0.005569759          0.06683711              0.007201881
## Migrated             0.333333333          0.00000000              0.000000000
## Migrated_other       0.000000000          0.00000000              0.000000000
## Migrated_Other       0.013513514          0.01351351              0.013513514
## Recovered            0.005934619          0.03590947              0.007678122
##              Detected.StateChhattisgarh
##                             0.000000000
## Deceased                    0.004758779
## Hospitalized                0.008183437
## Migrated                    0.000000000
## Migrated_other              0.000000000
## Migrated_Other              0.000000000
## Recovered                   0.015926236
##              Detected.StateDadra and Nagar Haveli and Daman and Diu
##                                                        0.000000000
## Deceased                                               0.000000000
## Hospitalized                                           0.001951698
## Migrated                                               0.000000000
## Migrated_other                                         0.000000000
## Migrated_Other                                         0.067567568
## Recovered                                              0.001743504
##              Detected.StateDelhi Detected.StateGoa Detected.StateGujarat
##                      0.000000000       0.000000000            0.00000000
## Deceased             0.008532983       0.005415162            0.07597637
## Hospitalized         0.017325603       0.002237034            0.03283647
## Migrated             0.333333333       0.000000000            0.00000000
## Migrated_other       0.000000000       0.000000000            0.00000000
## Migrated_Other       0.000000000       0.000000000            0.00000000
## Recovered            0.001709975       0.003688181            0.03222129
##              Detected.StateHaryana Detected.StateHimachal Pradesh
##                        0.00000000                    0.000000000
## Deceased               0.02116836                    0.000984575
## Hospitalized           0.01123083                    0.004028944
## Migrated               0.00000000                    0.000000000
## Migrated_other         0.00000000                    0.000000000
## Migrated_Other         0.00000000                    0.108108108
## Recovered              0.01978206                    0.008449288
##              Detected.StateJammu and Kashmir Detected.StateJharkhand
##                                  0.00000000             0.000000000
## Deceased                         0.02543485             0.008040696
## Hospitalized                     0.01165312             0.008537253
## Migrated                         0.00000000             0.000000000
## Migrated_other                   0.00000000             0.000000000
## Migrated_Other                   0.00000000             0.000000000
```

```
## Recovered                              0.01733445         0.010494552
##               Detected.StateKarnataka Detected.StateKerala
##                            0.00000000         0.000000000
## Deceased                   0.23990811         0.007712504
## Hospitalized               0.40711742         0.014015705
## Migrated                   0.00000000         0.000000000
## Migrated_other             0.00000000         0.000000000
## Migrated_Other             0.01351351         0.256756757
## Recovered                  0.46762783         0.021022632
##               Detected.StateLadakh Detected.StateMadhya Pradesh
##                          0.0000000000                   0.00000000
## Deceased                 0.0003281917                   0.04512635
## Hospitalized             0.0007532871                   0.02807706
## Migrated                 0.0000000000                   0.00000000
## Migrated_other           0.0000000000                   0.00000000
## Migrated_Other           0.0000000000                   0.00000000
## Recovered                0.0015758592                   0.03875943
##               Detected.StateMaharashtra Detected.StateManipur
##                              0.00000000         0.0000000000
## Deceased                     0.12668198         0.0008204792
## Hospitalized                 0.06511368         0.0030816289
## Migrated                     0.00000000         0.0000000000
## Migrated_other               1.00000000         0.0000000000
## Migrated_Other               0.17567568         0.0000000000
## Recovered                    0.04187762         0.0025481978
##               Detected.StateMeghalaya Detected.StateMizoram
##                            0.0000000000         0.000000000
## Deceased                   0.0008204792         0.000000000
## Hospitalized               0.0010956903         0.000673393
## Migrated                   0.0000000000         0.000000000
## Migrated_other             0.0000000000         0.000000000
## Migrated_Other             0.0000000000         0.013513514
## Recovered                  0.0014082146         0.001374686
##               Detected.StateNagaland Detected.StateOdisha
##                           0.0000000000         0.00000000
## Deceased                  0.0001640958         0.02313751
## Hospitalized              0.0018033236         0.01319394
## Migrated                  0.0000000000         0.00000000
## Migrated_other            0.0000000000         0.00000000
## Migrated_Other            0.0405405405         0.00000000
## Recovered                 0.0024140821         0.02521375
##               Detected.StatePuducherry Detected.StatePunjab
##                            0.000000000         0.00000000
## Deceased                   0.003938300         0.02494257
## Hospitalized               0.001129931         0.01035199
## Migrated                   0.000000000         0.00000000
## Migrated_other             0.000000000         0.00000000
## Migrated_Other             0.000000000         0.00000000
## Recovered                  0.002615256         0.01508801
##               Detected.StateRajasthan Detected.StateSikkim
##                            0.00000000         0.0000000000
## Deceased                   0.04184444         0.0000000000
## Hospitalized               0.03185491         0.0006962199
## Migrated                   0.00000000         0.0000000000
```

```
## Migrated_other                    0.00000000         0.0000000000
## Migrated_Other                    0.00000000         0.0135135135
## Recovered                         0.03248952         0.0017099749
##               Detected.StateState Unassigned Detected.StateTamil Nadu
##                                   0.0000000000            0.0000000
## Deceased                          0.0000000000            0.1017394
## Hospitalized                      0.0003766435            0.1417778
## Migrated                          0.0000000000            0.0000000
## Migrated_other                    0.0000000000            0.0000000
## Migrated_Other                    0.0000000000            0.0000000
## Recovered                         0.0000000000            0.0445264
##               Detected.StateTelangana Detected.StateTripura
##                                0.000000000          0.000000000
## Deceased                       0.008532983          0.002789629
## Hospitalized                   0.014392348          0.002944668
## Migrated                       0.000000000          0.333333333
## Migrated_other                 0.000000000          0.000000000
## Migrated_Other                 0.000000000          0.067567568
## Recovered                      0.002548198          0.006102263
##               Detected.StateUttar Pradesh Detected.StateUttarakhand
##                                   0.25000000             0.000000000
## Deceased                          0.09501149             0.007056121
## Hospitalized                      0.04317705             0.008685628
## Migrated                          0.00000000             0.000000000
## Migrated_other                    0.00000000             0.000000000
## Migrated_Other                    0.00000000             0.202702703
## Recovered                         0.07590947             0.007946354
##               Detected.StateWest Bengal
##                                0.00000000
## Deceased                       0.04446997
## Hospitalized                   0.01261185
## Migrated                       0.00000000
## Migrated_other                 0.00000000
## Migrated_Other                 0.00000000
## Recovered                      0.02541492
##
## Coefficients of linear discriminants:
##                                              LD1           LD2
## NationalityCanada                       -0.8098007 -7.501043e-02
## NationalityIndia                        -0.3827154 -7.679200e-03
## NationalityIndonesia                     1.6129350  4.917792e-02
## NationalityItaly                        -2.4166842 -6.339037e-02
## NationalityMyanmar                       0.4547212  1.674201e-02
## NationalityPhillipines                   1.8606907  5.685164e-02
## NationalityThailand                      0.4547212  1.674201e-02
## NationalityTibet                        -1.7975041 -5.674003e-02
## NationalityUnited Kingdom               -3.1238878 -8.356554e-02
## NationalityUnited States of America     -3.1197712 -8.161697e-02
## GenderF                                  3.5037747  9.819204e-02
## GenderM                                  3.4711548  9.728663e-02
## GenderNon-Binary                         3.4722271  9.764042e-02
## Type.of.transmissionImported            -0.9440271 -3.011319e-02
## Type.of.transmissionLocal                0.1680524 -1.251809e-03
## Type.of.transmissionTBD                  0.9435199  2.154741e-02
```

```
## Type.of.transmissionUnknown                                  -2.0207136 -5.637289e-02
## Detected.StateAndaman and Nicobar Islands                     4.5925457 -1.612565e+02
## Detected.StateAndhra Pradesh                                  5.0128694 -1.612454e+02
## Detected.StateArunachal Pradesh                               4.8313852 -1.612496e+02
## Detected.StateAssam                                           5.1495783 -1.612417e+02
## Detected.StateBihar                                           3.3408663 -1.612915e+02
## Detected.StateChandigarh                                      2.4637908 -1.613160e+02
## Detected.StateChhattisgarh                                    4.6503505 -1.612548e+02
## Detected.StateDadra and Nagar Haveli and Daman and Diu        4.4732644 -1.612603e+02
## Detected.StateDelhi                                           6.2922464 -1.612087e+02
## Detected.StateGoa                                             4.6476636 -1.612557e+02
## Detected.StateGujarat                                         4.2841470 -1.612660e+02
## Detected.StateHaryana                                         4.8140969 -1.612508e+02
## Detected.StateHimachal Pradesh                                4.5574086 -1.612577e+02
## Detected.StateJammu and Kashmir                               4.9692008 -1.612466e+02
## Detected.StateJharkhand                                       5.1449944 -1.612412e+02
## Detected.StateKarnataka                                       2.7064623 -1.613094e+02
## Detected.StateKerala                                          4.7559553 -1.612520e+02
## Detected.StateLadakh                                          4.5056694 -1.612587e+02
## Detected.StateMadhya Pradesh                                  5.0330042 -1.612446e+02
## Detected.StateMaharashtra                                     5.6298094 -1.612282e+02
## Detected.StateManipur                                         4.8299340 -1.612497e+02
## Detected.StateMeghalaya                                       5.0960317 -1.612424e+02
## Detected.StateMizoram                                         4.1312214 -1.612695e+02
## Detected.StateNagaland                                        4.9966187 -1.612454e+02
## Detected.StateOdisha                                          4.2696318 -1.612660e+02
## Detected.StatePuducherry                                      4.5062655 -1.612599e+02
## Detected.StatePunjab                                          4.9586241 -1.612469e+02
## Detected.StateRajasthan                                       5.3068537 -1.612368e+02
## Detected.StateSikkim                                          4.3576840 -1.612631e+02
## Detected.StateState Unassigned                                6.5464730 -1.612014e+02
## Detected.StateTamil Nadu                                      3.5646240 -1.612854e+02
## Detected.StateTelangana                                       6.1653752 -1.612124e+02
## Detected.StateTripura                                         4.6021674 -1.612568e+02
## Detected.StateUttar Pradesh                                   4.7965261 -1.611945e+02
## Detected.StateUttarakhand                                     5.2515694 -1.612387e+02
## Detected.StateWest Bengal                                     4.6875267 -1.612549e+02
##                                                                           LD3
## NationalityCanada                                              2.33831708
## NationalityIndia                                               0.49220256
## NationalityIndonesia                                           0.80928069
## NationalityItaly                                               1.72732738
## NationalityMyanmar                                             0.97162336
## NationalityPhillipines                                         2.66596228
## NationalityThailand                                            0.97162336
## NationalityTibet                                             -32.64317951
## NationalityUnited Kingdom                                      0.23324367
## NationalityUnited States of America                           -0.63361774
## GenderF                                                       -0.06382264
## GenderM                                                       -0.20676006
## GenderNon-Binary                                               1.01125539
## Type.of.transmissionImported                                   0.53765943
## Type.of.transmissionLocal                                      1.42710702
## Type.of.transmissionTBD                                        1.74145391
```

```
## Type.of.transmissionUnknown                                 1.34700370
## Detected.StateAndaman and Nicobar Islands                   -0.45235741
## Detected.StateAndhra Pradesh                                -2.07735244
## Detected.StateArunachal Pradesh                              0.96904676
## Detected.StateAssam                                         -2.11426794
## Detected.StateBihar                                          0.66544592
## Detected.StateChandigarh                                     0.99045857
## Detected.StateChhattisgarh                                   0.43158003
## Detected.StateDadra and Nagar Haveli and Daman and Diu       1.83298957
## Detected.StateDelhi                                          0.08133557
## Detected.StateGoa                                           -1.94014237
## Detected.StateGujarat                                       -2.27462482
## Detected.StateHaryana                                       -1.29429101
## Detected.StateHimachal Pradesh                               1.27971170
## Detected.StateJammu and Kashmir                             -1.79003968
## Detected.StateJharkhand                                     -0.23278699
## Detected.StateKarnataka                                      0.37471559
## Detected.StateKerala                                         0.57199408
## Detected.StateLadakh                                         0.53818628
## Detected.StateMadhya Pradesh                                -1.10676713
## Detected.StateMaharashtra                                   -2.03610123
## Detected.StateManipur                                        0.74946486
## Detected.StateMeghalaya                                      0.02727684
## Detected.StateMizoram                                        1.48222449
## Detected.StateNagaland                                       1.41178532
## Detected.StateOdisha                                        -0.99982399
## Detected.StatePuducherry                                    -2.66216688
## Detected.StatePunjab                                        -2.10485307
## Detected.StateRajasthan                                     -0.88574842
## Detected.StateSikkim                                         1.45008114
## Detected.StateState Unassigned                               1.16752048
## Detected.StateTamil Nadu                                    -0.13500225
## Detected.StateTelangana                                     -0.07987132
## Detected.StateTripura                                        0.32898560
## Detected.StateUttar Pradesh                                 -1.64463338
## Detected.StateUttarakhand                                    0.26644437
## Detected.StateWest Bengal                                   -2.90014130
##                                                                     LD4
## NationalityCanada                                           -1.0016108255
## NationalityIndia                                            -0.1198655518
## NationalityIndonesia                                        -1.2613003664
## NationalityItaly                                            -0.4762613495
## NationalityMyanmar                                          -1.2153148902
## NationalityPhillipines                                      -0.2782761046
## NationalityThailand                                         -1.2153148902
## NationalityTibet                                            -0.6897894178
## NationalityUnited Kingdom                                    3.0609461923
## NationalityUnited States of America                         5.3748301962
## GenderF                                                     -0.1082763472
## GenderM                                                     -0.1199782624
## GenderNon-Binary                                             0.0431695527
## Type.of.transmissionImported                                 1.4467339284
## Type.of.transmissionLocal                                    0.6600055579
## Type.of.transmissionTBD                                      0.8290131267
```

```
## Type.of.transmissionUnknown                                   0.2241948335
## Detected.StateAndaman and Nicobar Islands                     0.3041026122
## Detected.StateAndhra Pradesh                                  0.0435182494
## Detected.StateArunachal Pradesh                               0.5253414605
## Detected.StateAssam                                          -0.7016141532
## Detected.StateBihar                                           0.4327484357
## Detected.StateChandigarh                                      0.0912777096
## Detected.StateChhattisgarh                                    0.4525779958
## Detected.StateDadra and Nagar Haveli and Daman and Diu -8.6177863102
## Detected.StateDelhi                                           0.2135047959
## Detected.StateGoa                                             0.0845622954
## Detected.StateGujarat                                         0.0415892064
## Detected.StateHaryana                                         0.1870992345
## Detected.StateHimachal Pradesh                               -4.8902783228
## Detected.StateJammu and Kashmir                               0.0984682281
## Detected.StateJharkhand                                       0.3293561645
## Detected.StateKarnataka                                       0.4749638732
## Detected.StateKerala                                         -3.7982600219
## Detected.StateLadakh                                          0.4259541837
## Detected.StateMadhya Pradesh                                  0.1991758359
## Detected.StateMaharashtra                                    -0.7015278153
## Detected.StateManipur                                         0.4736072773
## Detected.StateMeghalaya                                       0.3627134374
## Detected.StateMizoram                                        -3.5683958234
## Detected.StateNagaland                                       -4.8358969309
## Detected.StateOdisha                                          0.2492304288
## Detected.StatePuducherry                                     -0.0006399451
## Detected.StatePunjab                                          0.0520077804
## Detected.StateRajasthan                                       0.2129203302
## Detected.StateSikkim                                         -3.1184822830
## Detected.StateState Unassigned                                0.4669300085
## Detected.StateTamil Nadu                                      0.3554892327
## Detected.StateTelangana                                       0.2789891605
## Detected.StateTripura                                        -4.4035038892
## Detected.StateUttar Pradesh                                   0.1300832528
## Detected.StateUttarakhand                                    -5.6169350521
## Detected.StateWest Bengal                                    -0.0462211080
##                                                                         LD5
## NationalityCanada                                            -12.76665441
## NationalityIndia                                               2.09434020
## NationalityIndonesia                                         -12.80576028
## NationalityItaly                                             -12.67800688
## NationalityMyanmar                                           -12.82927465
## NationalityPhillipines                                       -12.69236959
## NationalityThailand                                          -12.82927465
## NationalityTibet                                             -12.14854886
## NationalityUnited Kingdom                                    -11.57107259
## NationalityUnited States of America                            1.17123251
## GenderF                                                       -0.05419678
## GenderM                                                       -0.06941323
## GenderNon-Binary                                              -0.02039422
## Type.of.transmissionImported                                  12.86050056
## Type.of.transmissionLocal                                     -0.81874665
## Type.of.transmissionTBD                                       -0.33388312
```

```
## Type.of.transmissionUnknown                                    0.07800029
## Detected.StateAndaman and Nicobar Islands                     -0.13020561
## Detected.StateAndhra Pradesh                                  -0.12347552
## Detected.StateArunachal Pradesh                               -0.10286979
## Detected.StateAssam                                            5.25309705
## Detected.StateBihar                                           -0.06521676
## Detected.StateChandigarh                                      -0.13366374
## Detected.StateChhattisgarh                                    -0.13057248
## Detected.StateDadra and Nagar Haveli and Daman and Diu        -1.17348561
## Detected.StateDelhi                                            2.35068027
## Detected.StateGoa                                             -0.21649531
## Detected.StateGujarat                                         -0.16862714
## Detected.StateHaryana                                         -0.20185788
## Detected.StateHimachal Pradesh                                -0.74522680
## Detected.StateJammu and Kashmir                               -0.19249926
## Detected.StateJharkhand                                       -0.10903464
## Detected.StateKarnataka                                       -0.06630938
## Detected.StateKerala                                          -1.34299311
## Detected.StateLadakh                                          -0.67889578
## Detected.StateMadhya Pradesh                                  -0.11524533
## Detected.StateMaharashtra                                     -0.24148974
## Detected.StateManipur                                         -0.12260230
## Detected.StateMeghalaya                                       -0.08194584
## Detected.StateMizoram                                         -0.74280566
## Detected.StateNagaland                                        -0.74026231
## Detected.StateOdisha                                          -0.11361721
## Detected.StatePuducherry                                      -0.12112311
## Detected.StatePunjab                                          -0.15352693
## Detected.StateRajasthan                                       -0.14855180
## Detected.StateSikkim                                          -0.55384885
## Detected.StateState Unassigned                                -0.07335878
## Detected.StateTamil Nadu                                      -0.03517145
## Detected.StateTelangana                                       -0.19219862
## Detected.StateTripura                                          8.03911192
## Detected.StateUttar Pradesh                                   -0.11300815
## Detected.StateUttarakhand                                     -0.84129494
## Detected.StateWest Bengal                                     -0.14064133
##                                                                        LD6
## NationalityCanada                                              0.562350655
## NationalityIndia                                               0.356466215
## NationalityIndonesia                                          -0.341736749
## NationalityItaly                                               0.458912711
## NationalityMyanmar                                            -0.191622682
## NationalityPhillipines                                        -3.928964188
## NationalityThailand                                           -0.191622682
## NationalityTibet                                             -15.792280633
## NationalityUnited Kingdom                                      0.587066287
## NationalityUnited States of America                            2.559928661
## GenderF                                                       -0.226961701
## GenderM                                                       -0.294382839
## GenderNon-Binary                                               0.316915632
## Type.of.transmissionImported                                   0.975704133
## Type.of.transmissionLocal                                      0.619479175
## Type.of.transmissionTBD                                       -0.550034637
```

```
## Type.of.transmissionUnknown                                  0.784076999
## Detected.StateAndaman and Nicobar Islands                    -0.509342521
## Detected.StateAndhra Pradesh                                 -1.355862919
## Detected.StateArunachal Pradesh                               0.191195875
## Detected.StateAssam                                          -1.208999384
## Detected.StateBihar                                           0.104627222
## Detected.StateChandigarh                                      0.222574463
## Detected.StateChhattisgarh                                   -0.069357594
## Detected.StateDadra and Nagar Haveli and Daman and Diu       -1.413469226
## Detected.StateDelhi                                          -0.178542577
## Detected.StateGoa                                            -1.270549687
## Detected.StateGujarat                                        -1.413961764
## Detected.StateHaryana                                        -0.945212003
## Detected.StateHimachal Pradesh                               -0.850540259
## Detected.StateJammu and Kashmir                              -1.202864212
## Detected.StateJharkhand                                      -0.432859184
## Detected.StateKarnataka                                       0.005789488
## Detected.StateKerala                                         -0.953087953
## Detected.StateLadakh                                         -0.010696747
## Detected.StateMadhya Pradesh                                 -0.854697735
## Detected.StateMaharashtra                                     3.146377940
## Detected.StateManipur                                         0.077209304
## Detected.StateMeghalaya                                      -0.296576275
## Detected.StateMizoram                                        -0.447765749
## Detected.StateNagaland                                       -0.798698306
## Detected.StateOdisha                                         -0.770480769
## Detected.StatePuducherry                                     -1.620117742
## Detected.StatePunjab                                         -1.360778264
## Detected.StateRajasthan                                      -0.766754564
## Detected.StateSikkim                                         -0.370017154
## Detected.StateState Unassigned                                0.193117885
## Detected.StateTamil Nadu                                     -0.296580727
## Detected.StateTelangana                                      -0.400398336
## Detected.StateTripura                                        -0.654502410
## Detected.StateUttar Pradesh                                  -1.117975203
## Detected.StateUttarakhand                                    -1.522393300
## Detected.StateWest Bengal                                    -1.750027456
##
## Proportion of trace:
##    LD1    LD2    LD3    LD4    LD5    LD6
## 0.6116 0.3628 0.0162 0.0074 0.0020 0.0001
```

```
lda.train <- predict(lda.patients_data)
train$lda <- lda.train$class
table(train$lda,train$Current.Status)
```

```
##
##                 Deceased Hospitalized Migrated Migrated_other
##                        3           0        1              0              0
##   Deceased             0           1        0              0              0
##   Hospitalized         1        4869    78413              1              2
##   Migrated             0          23      483              2              0
##   Migrated_other       0           0        0              0              0
##   Migrated_Other       0          74     2528              0              0
```

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```
## Recovered                    0     1127        6191         0                0
##
##                   Migrated_Other Recovered
##                                0         3
## Deceased                       0         0
## Hospitalized                  16     10308
## Migrated                       5       237
## Migrated_other                 0         0
## Migrated_Other                51      1249
## Recovered                      2     18028
```

```r
mean(train$lda==train$Current.Status)
```

```
## [1] 0.7806145
```